UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/084,162	02/28/2002	Kazuya Nakagawa	2635-98	4851

4

7590 07/07/2003

NIXON & VANDERHYE, P.C.
8th Floor
1100 North Glebe Rd.
Arlington, VA 22201-4714

EXAMINER
TUNG, TA HSUNG

ART UNIT	PAPER NUMBER
1753	

DATE MAILED: 07/07/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)
10/084,162	NAKAGAWA ET AL
Examiner	**Group Art Unit**
T. TUNG	1753

Paper No. 4

—The MAILING DATE of this communication appears on the cover sheet beneath th correspondence address—

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

☐ Responsive to communication(s) filed on _____.

☐ This action is FINAL.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 1 1; 453 O.G. 213.

Disposition of Claims

☑ Claim(s) 1-14 is/are pending in the application.

Of the above claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☑ Claim(s) 1-14 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claim(s) _____ are subject to restriction or election requirement

Application Papers

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

☑ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119 (a)-(d).

☑ All ☐ Some* ☐ None of the:

☑ Certified copies of the priority documents have been received.

☐ Certified copies of the priority documents have been received in Application No. _____.

☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a))

*Certified copies not received: _____.

Attachment(s)

☑ Information Disclosure Stat ment(s), PTO-1449, Paper No(s). _____

☑ Notice of Ref rence(s) Cited, PTO-892

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Interview Summary, PTO-413

☐ Notice of Informal Patent Application, PTO-152

☐ Other _____

Office Action Summary

Claims 1-14 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The disclosure with regard to the "groove" (e.g. claim 7, line 2) is confusing and inadequate. This subject matter is apparently illustrated in figures 14 and 15. At page 21, lines 9-17 of the specification, the "grooves" 215 are said to be formed on the outer surface of the inner cover 22. However, figure 15 appears to show elements 215 as protrusions formed on the inner surface of the outer cover. Note that inner cover 22 in figure 15 does not even reach elements 215. To add to the confusion, element 215 is stated at line 15 of the page to "bulge inward". The word bulge denotes enlarging. A groove would not be enlarging inwardly. It is also unclear how grooves in the outer cover beween inlet holes 210 would serve to direct a sample gas toward inlet holes 220 of the inner cover.

Also, note that the wording of claims 7, 11 and 13 calls for the groove to be on a surface of the outer cover, contrary to the statement at page 21, line 14 of the specification.

Further, figure 15 is confusing in that it is a supposedly a transverse cross section of figure 14. Where would this cross section be taken that would leave the circle 22 representing the lower straight portion of the inner cover as a dotted line while the circle (third solid line circle from the outside to the inside in the figure) representing the upper tapered portion of the inner cover to be a solid line?

The subject matter of claims 5 and 6 is confusing and appears to be inconsistent with the disclosure.

Claim 5 calls for a gas flow-opposed wall oriented upstream of the gas flow path with the second gas inlet hole being formed in this wall. It is not evident what element is this "gas flow-opposed wall". If the "gas flow-opposed wall" is the straight portion of the inner cover beneath the tapered portion, the second gas inlet 220 is not located thereat. If the tapered portion of the inner cover or the entire inner cover is this "gas flow-opposed wall", this wall then would certainly not be upstream of the gas path.

The subject matter of claim 14 is also confusing. In the disclosure, it is not seen where the groove, be it located in the inner cover or the outer cover, would extend in alignment with the second gas inlet.

In the specification, the description set forth in the paragraph bridging pages 10-11 is confusing. The shoulder 211 in the outer cover is said to taper off to the bottom of the cover assembly. However, shoulder 211 is located at about the mid-point of the outer cover and is not seen to taper off to the bottom of the cover assembly. The tapered wall 222 of the inner cover is said to extend downwardly closer to the base of the cover assembly than shoulder 211 of the outer cover. What is this "base"? If it is the bottom of the cover assembly, the tapered wall 222 is not seen to extend closer to the base than shoulder 211 of the outer cover. Incidentally, the description at page 13, lines 2-6 of the specification is similarly confusing.

At page 21, lines 4-8, of the specification, the discussion appears to be inconsistent with the drawings. The upper tapered wall 222 of the inner cover is said to extend from the flange 29 to the inlet holes 210 of the outer cover. However, wall 222 is seen to extend short of the inlet holes 210 in figure 14. Also, the grammar at line 7 is at best awkward. The inlet holes 220 are not formed in the flange, as line 7 appears to suggest.

Claims 1-14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 8, line 5 of each, "opposed" is questioned. At lines 1-2 of the claims the sensor is stated to have first and second ends opposed to each other. Thus, "opposed" as used by applicant would mean opposite. However, it is evident that first and second ends of the hollow cylindrical housing are not opposite to the first and second ends of the sensor. In fact, the first end of the sensor and the first end of the housing are both at the upper ends thereof, while the second sensor end and the second housing end are both the lower ends thereof.

Claims 5 and 6, it is unclear what element is the "gas flow-opposed wall", as discussed baefore.

Claims 7, 11 and 13, it is not evident whether the "groove" is located on the outer cover, or whether it is even a groove instead of a protrusion, as discussed before.

Claim 8, line 17, "tapers off to a side of the second end of the gas sensor" is vague. What side is this "side of the second end of the gas sensor"?

Claim 9, line 2, "a surface which tapers...." is considered to be misdescriptive. It is the wall not the surface, that is tapered.

Claim 9, line 3, what side is this "side of the first end of the gas sensor"?

Claim 13, line 3, what side is this "side of the first end of the gas sensor"?

Claim 14, lines 1-2, "the groove has a length extending in alignment with the second gas inlet hole...." is vague, as discussed before.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless -
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 1, 2, 5, 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Makino etal 6,346,179.

Makino discloses a sensor comprising a sensing element 2 supported within a cylindrical housing 29 and having a protective cover assembly with an inner cover and an outer cover that define a clearance between them for a gas flow path. There is an inlet hole in a side wall of the outer cover lower than an inlet hole in a side wall of the inner cover. The inner cover can comprise a straight portion and a tapered portion. See figures 1-8; col. 6, line 24 to col. 12, line 34. Since all structural features recited by applicant's claims are present in the Makino device, the

inner and outer covers of the patented device are considered to be "geometrically designed to define a gas path within the clearance which establishes a flow of the specified gas from the first gas inlet hole to the gas chamber through the second gas inlet hole for minimizing interference of a return gas flow...." (claim 1, last six lines). Because applicant's claims are drawn to an apparatus, whether Makino actually carries out sensor operation with a gas flow in the described manner is irrelevant, it being sufficient that Makino is capable of operating with such a gas flow.

As for claim 8, figure 7e of the patent shows the gas inlet hole in the inner cover to be at a tapered surface.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 3, 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Makino etal.

These claims differ by calling for the clearance to be divided into a wider portion and a narrower portion with the former being 1.1 times wider than the latter.

The clearance at the tapered portion in Makino is wider than the clearance at the straight portion. How much wider is a matter of design choice. There is no evidence that the 1.1 times wider value achieves any unexpected result.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Makino etal in view of Kato etal 4,929,331.

This claim differs by calling for the inner cover to have a shoulder.

Kato discloses a sensor with a double-wall cover assembly wherein an inner cover 6 has a shoulder. See figure 2a; col. 3, line 61. It would have been obvious for Makino to adopt a shoulder for its inner cover in view of Kato, because a shoulder would create a gas flow path that includes a wider and a narrower portion the same as a tapered surface would. Also, the incorporation of known features from analogous prior art is within the skill of the art in the absence of unexpected result.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Makino etal in view of Japan 11183425.

This claim differs by calling for the inner cover to have a straight portion and a tapered portion with the gas inlet hole at the tapered portion.

Japan discloses a sensor including a double-walled cover assembly wherein an inner cover has a straight portion and a tapered portion with an inlet hole 21. See figures 6 and 7. It would have been obvious for Makino to adopt the inner cover configuration of Japan, since the incorporation of known features from analogous prior art is within the skill of the art in the absence of unexpected result.

Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Makino etal in view of Beesch 3,891,529.

This claim differs by calling for the outer cover to have a shoulder.

Beesch discloses a cover for a sensing element with a shoulder. See figures 1 and 2. It would have been obvious for Makino to adopt a should for its outer cover in view of Beesch, since such a shoulder would create a gas path with a wider portion and a narrower portion the same as a tapered surface would.

The subject matter of claims 7, 9, 11, 13, 14 including a groove for directing a sample gas and an outer cover with a tapered side wall is not disclosed or fairly suggested by the prior art of record. These claims would be allowable if the rejections under 35 USC 112 were overcome and if the claims were in independent form.

Kato etal 6,348,141 discloses a double-walled cover assembly wherein an inner cover has a tapered portion. See figures 1, 5-7, 9. Jyouno etal 5,707,504 discloses a double-walled cover assembly. See figures 16 and 19.

The examiner can be reached at 703-308-3329. His supervisor Nam Nguyen can be reached at 703-308-3322. Any general inquiry should be directed to the receptionist at 703-308-0661. A fax number for TC 1700 is 703-872-9310.

T. Y

Ta Tung

Primary Examiner

Art Unit 1753